



National Pesticide Survey

Project Summary

The U.S. Environmental Protection Agency (EPA) has completed its five-year National Survey of Pesticides in Drinking Water Wells (NPS). This fact sheet provides an overview of the Survey and a summary of Survey findings.

First National Survey of its Kind

A joint project of EPA's Office of Drinking Water (ODW) and Office of Pesticide Programs (OPP), the Survey is the first national study of pesticides, pesticide degradates, and nitrate in drinking water wells. The Survey has two principal objectives: (1) to determine the frequency and concentration of the presence of pesticides and nitrate in drinking water wells nationally; and (2) to improve EPA's understanding of how the presence of pesticides and nitrate in drinking water wells is associated with patterns of pesticide use and the vulnerability of ground water to contamination. The findings will help EPA set priorities, prepare guidance, and develop and implement regulatory programs.

Development of the Survey's statistical design started in 1984. In 1987, EPA conducted a pilot study in California, Mississippi, and Minnesota to test Survey implementation and analytical procedures. Sampling for the full Survey began in April 1988 and the final sample was collected in February 1990. More than 1300 wells were sampled, some in every State. The total cost of the Survey was approximately \$12 million.

EPA released a Phase I Report in Fall 1990. This report covers Survey design, implementation, analytical chemistry, quality assurance, and summary results. In Spring 1991, EPA will release a Phase II Report containing results and findings from analyses of the relationships among chemical detections, well construction, ground-water vulnerability, pesticide use, and other factors.

Summary of Phase I NPS Results

The NPS provides EPA's first national estimates of the frequencies and concentrations of pesticides and nitrate in community water system (CWS) wells and rural domestic drinking water wells.

These Survey results indicate that the proportion of wells nationwide found to contain any particular pesticide or pesticide degradate is low. Considering only the proportion of wells containing pesticides over the EPA levels of health concern, Survey results do not demonstrate any immediate widespread health problem. Survey results also show, however, that substantial numbers of wells, particularly rural domestic wells, could be affected by the presence of one or more pesticides. In addition, substantial numbers of wells are affected both by the presence of nitrate and by nitrate over EPA levels of health concern. EPA believes that these results indicate that there is need for continued attention and additional analysis of the issue.

What Was EPA Looking For?

The Survey analyzed a statistically representative sample of wells to provide a national assessment of the presence of pesticides and nitrate in drinking water wells. The Survey does not assess the presence of pesticides or nitrate at the local, county, or State level, nor does it assess the presence of pesticides or nitrate in ground or surface water generally. The Survey focused on the quality of water in drinking water



wells before treatment rather than the quality of drinking water at the tap. If a water treatment system was connected to the well, EPA sampled prior to the treatment system.

Water samples collected by EPA were analyzed for 101 pesticides, 25 pesticide degradates, and nitrate (for a total of 127 analytes). Because the NPS was designed to assess the presence of a wide range of pesticides in drinking water wells, multi-residue methods of chemical analysis were used to provide a broad-range scanning of chemicals in collected samples. The analytical method selected by EPA for nitrate analyzed the combined presence of nitrate and nitrite in collected samples measured as nitrogen (N), which is reported as a single concentration of nitrate. Exhibit 1 lists the NPS analytes and analytic methods.

What Did EPA Find?

EPA estimates that there are approximately 38,300 community water systems with operating wells nationally, which together comprise approximately 94,600 CWS wells, and that there are about 10,500,000 rural domestic wells in the United States.

Initial Survey results include several findings. EPA estimates that:

- About 9,850 (10.4%) of the nation's CWS wells and about 446,000 (4.2%) of the nation's rural domestic wells contain at least one pesticide above Survey minimum reporting limits. The most commonly found chemicals, other than nitrate, are the acid metabolites of the pesticide DCPA, and atrazine.
- The levels of pesticides and pesticide degradates found in wells were usually lower than levels of drinking water health concern.
- Over half of all CWS wells and rural domestic wells nationally contain nitrate above the NPS minimum reporting limit (0.15 mg/L). About 1,130 (1.2%) CWS wells and 254,000 (2.4%) rural domestic wells contain nitrate exceeding EPA's Maximum Contaminant Level (MCL) and lifetime Health Advisory Level (HAL) of 10 milligrams per liter (mg/L).
- The maximum concentrations of nitrate detected were approximately 13 mg/L for CWS wells and 120 mg/L for rural domestic wells. (There may be other wells not sampled by the Survey that contain nitrate at concentrations higher than the levels detected in the sampled wells.)
- The median concentrations of nitrate detected, above the Survey's minimum reporting limit, were approximately 1.6 mg/L for both CWS wells and rural domestic wells.

Selected Survey findings for wells with at least one pesticide detected are summarized in Exhibit 2. Pesticide concentrations are reported in units of micrograms per liter ($\mu\text{g/L}$), the equivalent of parts per billion (ppb). Exhibit 2 also presents selected Survey results for wells containing nitrate above the minimum reporting limit. Nitrate concentrations are reported in units of milligrams of nitrogen per liter (mg/L), which is equivalent to parts per million (ppm).

The degree of precision of the Survey is reflected in the confidence intervals presented in Exhibits 2 and 3. The confidence intervals represent ranges, specified by an upper and lower bound, that EPA is reasonably confident contain the national estimates. For example, EPA estimates that about 9,850 (10.4%) CWS wells nationally contain detectable levels of at least one pesticide. Considering the precision of the Survey, this number could be as low as 6,330 (6.8%), or as high as 13,400 (14.1%) as indicated by the 95% confidence intervals.

Exhibit 1

Analytes Detectable By Method

NPS METHOD 1: Gas Chromatography with a Nitrogen-Phosphorous Detector				(46 Analytes)
Alachlor	Diphenamid	Methyl paraxon	Simazine	
Ametryn	Disulfoton*	Metolachlor	Simetryn	
Atraton	Disulfoton sulfone*	Metribuzin	Stirofos	
Atrazine	Disulfoton sulfoxide*	Mevinphos	Tebuthiuron	
Bromacil	EPTC	Molinate	Terbacil	
Butachlor	Ethoprop	Napropamide	Terbufos*	
Butylate	Fenamiphos	Norflurazon	Terbutryn	
Carboxin	Fenarimol	Pebulate	Triademefon	
Chlorpropham	Fluridone	Prometon	Tricyclazole	
Cycloate	Hexazinone	Prometryn	Vernolate	
Diazinon*	MGK 264	Pronamide*		
Dichlorvos	Merphos*	Propazine		
NPS METHOD 2: Gas Chromatography with an Electron Capture Detector				(29 Analytes)
4,4-DDD	Dieldrin	Heptachlor epoxide	gamma - HCH	
4,4-DDE	Endosulfan I	Hexachlorobenzene	alpha-Chlordane	
4,4-DDT	Endosulfan II	Methoxychlor	gamma-Chlordane	
Aldrin	Endosulfan sulfate	Propachlor	cis - Permethrin	
Chlorobenzilate*	Endrin	Trifluralin	trans - Permethrin	
Chloroneb	Endrin Aldehyde	alpha - HCH		
Chlorothalonil	Etridiazole	beta - HCH		
DCPA	Heptachlor	delta - HCH*		
NPS METHOD 3: Gas Chromatography with an Electron Capture Detector				(17 Analytes)
2,4-D	4-Nitrophenol*	Dalapon*	Pentachlorophenol (PCP)	
2,4-DB	Acifluorfen*	Dicamba	Picloram	
2,4,5-TP	Bentazon	Dicamba, 5-hydroxy-		
2,4,5-T	Chloramben*	Dichlorprop		
3,5-Dichlorobenzoic acid	DCPA acid metabolites	Dinoseb		
NPS METHOD 4: High Performance Liquid Chromatography with an Ultraviolet Detector				(18 Analytes)
Atrazine, deethylated	Diuron	Metribuzin DA	Propanil	
Barban	Fenamiphos sulfone	Metribuzin DADK*	Propham	
Carbofuran, phenol-3-keto-	Fenamiphos sulfoxide	Metribuzin DK*	Sweep	
Carbofuran, phenol	Fluometuron	Neburon		
Cyanazine	Linuron	Pronamide metabolite		
NPS METHOD 5: Direct Aqueous Injection HPLC with Post-Column Derivatization				(10 Analytes)
Aldicarb	Baygon	Carbofuran, 3-hydroxy-	Oxamyl	
Aldicarb sulfone	Carbaryl	Methiocarb		
Aldicarb sulfoxide	Carbofuran	Methomyl		
NPS METHOD 6: Gas Chromatography with a Nitrogen-Phosphorous Detector				(1 Analyte)
Ethylene thiourea (ETU)				
NPS METHOD 7: Microextraction and Gas Chromatography				(5 Analytes)
Ethylene dibromide (EDB)	1,2 - dichloropropane**	trans - 1,3 -		
Dibromochloropropane (DBCP)	cis - 1,3 - dichloropropene**	dichloropropene**		
NPS METHOD 9: Automated Cadmium Reduction and Colorimetric Detection				(1 Analyte)
Nitrate and nitrite measured as nitrogen (N)				
* Qualitative only.				
** Method 8 dropped. Analytes previously included in Method 8 also detectable by Method 7.				

Exhibit 2

National Estimates for Number and Percent of Wells For Pesticides and Nitrate

	Estimated Number	95% Confidence Interval (Lower - Upper)	Estimated Percent	95% Confidence Interval (Lower - Upper)
PESTICIDES				
CWS wells nationally with at least one pesticide	9,850	(6,330 - 13,400)	10.4	(6.8 - 14.1)
CWS wells above MCL/HAL*	0	(0 - 750)	0	(0 - 0.8)
Rural domestic wells nationally with at least one pesticide	446,000	(246,000 - 647,000)	4.2	(2.3 - 6.2)
Rural domestic wells above MCL/HAL*	60,900	(9,430 - 199,000)	0.6	(0.1 - 1.9)
NITRATE				
CWS wells nationally	49,300	(45,300 - 53,300)	52.1	(48.0 - 56.3)
CWS wells above MCL/HAL*	1,130	(370 - 2,600)	1.2	(0.4 - 2.7)
Rural domestic wells nationally	5,990,000	(5,280,000 - 6,700,000)	57.0	(50.3 - 63.8)
Rural domestic wells above MCL/HAL*	254,000	(122,000 - 464,000)	2.4	(1.2 - 2.4)

* The Maximum Contaminant Level (MCL) is the maximum permissible level of a contaminant in water that is delivered to any user of a public water system. MCLs are enforceable standards. Only pesticides with MCLs were included in estimating the number of wells containing pesticides above the MCLs. Although the MCL is not legally applicable to rural domestic wells, it was used as a standard of quality for drinking water. The Health Advisory Level (HAL) is the concentration of a contaminant in water that may be consumed over a person's lifetime without harmful effects. HALs are non-enforceable health-based guidelines that consider only non-cancer toxic effects. Only pesticides with HALs were included in estimating the number of wells containing pesticides above the HALs.

Exhibit 3

National Estimates for Number and Percent of Wells Containing Detectable Amounts of Pesticides and Pesticide Degradates Analyzed by the National Pesticide Survey*

	Estimated Number	95% Confidence Interval (Lower - Upper)	Estimated Percent	95% Confidence Interval (Lower - Upper)**	NPS Reporting Limit***
Community Water System Wells					
DCPA acid metabolites	6,010	(3,170 - 8,840)	6.4	(3.4 - 9.3)	0.10 µg/L
Atrazine	1,570	(420 - 2,710)	1.7	(0.5 - 2.9)	0.12 µg/L
Simazine	1,080	(350 - 2,540)	1.1	(0.4 - 2.7)	0.38 µg/L
Prometon	520	(78 - 1,710)	0.5	(0.1 - 1.8)	0.15 µg/L
Hexachlorobenzene****	470	(61 - 1,630)	0.5	(0.1 - 1.7)	0.060 µg/L
Dibromochloropropane (DBCP)****	370	(33 - 1,480)	0.4	(<0.1 - 1.6)	0.010 µg/L
Dinoseb****	25	(1 - 870)	<0.1	(<0.1 - 0.9)	0.13 µg/L
Rural Domestic Wells					
DCPA acid metabolites	264,000	(129,000 - 477,000)	2.5	(1.2 - 4.5)	0.10 µg/L
Atrazine	70,800	(13,300 - 214,000)	0.7	(0.1 - 2.0)	0.12 µg/L
Dibromochloropropane (DBCP)****	38,400	(2,740 - 164,000)	0.4	(<0.1 - 1.6)	0.010 µg/L
Prometon	25,600	(640 - 142,000)	0.2	(<0.1 - 1.4)	0.15 µg/L
Simazine	25,100	(590 - 141,000)	0.2	(<0.1 - 1.3)	0.38 µg/L
Ethylene dibromide (EDB)****	19,200	(160 - 131,000)	0.2	(<0.1 - 1.2)	0.010 µg/L
Gamma-HCH (Lindane)	13,100	(14 - 120,000)	0.1	(<0.1 - 1.1)	0.043 µg/L
Ethylene thiourea (ETU)	8,470	(1 - 111,000)	0.1	(<0.1 - 1.1)	4.5 µg/L
Bentazon	7,160	(1 - 109,000)	0.1	(<0.1 - 1.0)	0.25 µg/L
Alachlor	3,140	(1 - 101,000)	<0.1	(<0.1 - 1.0)	0.50 µg/L

* In addition, three analytes (alpha-chlordane, gamma-chlordane, and beta-HCH) were detected by EPA laboratories at concentrations much lower than the respective minimum reporting levels used by the contract laboratories. The EPA laboratories did not analyze water samples from every well; thus national estimates cannot be produced for these pesticides. A fourth analyte, 4-nitrophenol, was a qualitative detection only.

** Numbers between zero and 0.05 are reported as less than 0.1 (<0.1).

*** EPA established specific reporting limits for each analyte.

**** Registration cancelled by EPA.

Exhibit 3 provides national estimates for the number of CWS wells and rural domestic wells containing individual detected pesticides and pesticide degradates, along with the associated 95% confidence intervals. Of all the pesticides and pesticide degradates detected in the Survey, DCPA acid metabolites and atrazine were the most commonly found. For DCPA acid metabolites, which are degradates of DCPA, the maximum concentrations detected were approximately 7.2 $\mu\text{g/L}$ for CWS wells and 2.4 $\mu\text{g/L}$ for rural domestic wells. The median concentrations for DCPA acid metabolites from the wells sampled in the Survey were about 0.34 $\mu\text{g/L}$ for CWS wells and 0.38 $\mu\text{g/L}$ for rural domestic wells. All DCPA acid metabolite detections were at concentration levels of 8 $\mu\text{g/L}$ or less, a small fraction (0.2%) of the HAL limit of 4,000 $\mu\text{g/L}$. The maximum concentrations of atrazine in Survey drinking water samples were about 0.92 $\mu\text{g/L}$ for CWS wells and 7.0 $\mu\text{g/L}$ for rural domestic wells. The median concentrations of detected atrazine, from the wells sampled in the Survey were about 0.26 $\mu\text{g/L}$ for CWS wells and 0.29 $\mu\text{g/L}$ for rural domestic wells. The proposed MCL for atrazine is 3 $\mu\text{g/L}$. A total of five pesticides, alachlor, atrazine, dibromochloropropane (DBCP), ethylene dibromide (EDB), and gamma-HCH (lindane) were detected in rural domestic wells at levels above their respective MCLs/HALs. MCLs are enforceable standards established by EPA for public water systems to protect human health. Although the MCL is not legally applicable to rural domestic wells, it was used as a standard of quality for drinking water. EPA notified well owners within 24 hours when detections were above health-based guidelines or standards. None of the detections of pesticides or pesticide degradates for CWS wells were above the MCL or HAL. The NPS Survey Analytes Fact Sheet contains a list of all Survey analytes with their Minimum Reporting Limits, MCLs, and HALs.

How Did EPA Select Wells?

The Survey was designed to yield results that are statistically representative of all CWS wells and rural domestic wells in the United States. EPA used statistical survey methods to select a representative group of CWS wells and rural domestic wells for sampling.

First, EPA characterized all counties in the U.S. according to pesticide use and relative ground-water vulnerability -- two critical factors affecting the presence of pesticides in drinking water wells. EPA concentrated on agricultural pesticide use, specified as high, moderate, low, or uncommon pesticide use. EPA characterized ground-water vulnerability by using a numerical classification system called DRASTIC, which considers depth of water, recharge, aquifer media, soil media, topography, impact of vadose zone, and conductivity of the aquifer.

To identify CWS wells, EPA randomly selected 7,083 community water systems from a list containing information on all public water supply systems. For the CWS well survey, EPA was interested in obtaining very accurate estimates of pesticide occurrence in counties that are more vulnerable to ground-water contamination. This was achieved by slightly over-representing wells from these counties in the set of selected CWS wells. EPA conducted telephone interviews with representatives of the 7,083 selected systems to determine their operating status, confirm the number of wells, and obtain cooperation for sampling. Based on the results of the screening process, EPA collected water samples from 566 wells, 540 of which were used in data analysis based on well samples that passed quality assurance requirements.

When selecting rural domestic wells, EPA randomly chose 90 counties as areas for sampling to represent the nation's wide range of agricultural pesticide use and ground-water vulnerability as measured by DRASTIC. EPA used the DRASTIC classification system to score ground-water vulnerability within counties and subcounty areas. EPA collected information from county agricultural extension agents on cropping intensity to further subdivide the counties into areas that are more vulnerable or less vulnerable to the presence of pesticides in ground water. For the rural domestic well survey, EPA was interested in obtaining very accurate estimates of

pesticide occurrence in locations with high pesticide use and high vulnerability to ground-water contamination. This was achieved by slightly over-representing wells from these locations in the set of selected rural domestic wells. A total of 864 eligible wells were selected for sampling. Of these selected wells, 783 wells were sampled based on homeowner participation; 752 of which were used in data analysis based on well samples that passed quality assurance requirements.

Once the wells were selected, EPA developed a sampling schedule to visit each well once. EPA scheduled sample collection so that well visits were spread out across the 22 month sampling period. This schedule provided well water samples during all seasons and pesticide application cycles. This approach was used to minimize the effect of seasonal variability. Eligible CWS wells were defined as wells in systems of piped drinking water that either have at least 15 connections or serve 25 permanent residents. To be eligible, a system must have had at least one operating well (at the time of sampling) that was being used to supply drinking water.

New Testing Methods Developed

Each sample taken in the National Pesticide Survey was tested for 127 analytes (see Exhibit 1). Through extensive literature searches, consultation with scientific experts, and assessments of methods in the laboratory, EPA evaluated existing laboratory methods for testing the analytes. Because of the wide variety of procedures used in these methods and the large number of analytes to be included in the Survey, EPA needed methods that could efficiently test for several analytes. Ultimately, EPA used two existing analytical methods and developed six new methods specifically for the Survey. Five of these six are multi-residue methods, each capable of detecting ten or more pesticides.

Sampling Across the Country

From April 1988 to February 1990, EPA collected water samples and well information from over 1300 community water system wells and rural domestic wells. EPA sampled each well once, collecting a minimum of 17 bottles of well water. State agencies across the country provided the sampling teams to collect samples from community water system wells. EPA's contractors conducted the domestic well sampling. CWS wells were sampled in every State and domestic wells were sampled in 38 states.

At each well sampled, questionnaires were used to collect data necessary for the interpretation of NPS results. Data included:

- observations about the well sampled and the surrounding area;
- information from the owner/operator about well construction and agricultural and non-agricultural pesticide use on the property where the well was located; and
- information from local area experts (such as a county agricultural extension agent) about crops, pesticide use, and land use within one-half mile of the well.

In the Lab

The chemical analyses of NPS water samples were performed at five contract laboratories and three EPA laboratories. The contract laboratories were responsible for chemical analyses of water samples collected in the field by one or more of the established methods. Two EPA laboratories were responsible for managing contract laboratories, confirming detections of pesticides in samples, and ensuring that quality control standards were maintained; the third EPA laboratory performed chemical analyses.

Putting Quality First

EPA made an extraordinary commitment to quality early in the Survey. A quality assurance (QA) program covering every major component of the Survey ensured that the Survey produced high quality, statistically valid data useful to both scientists and policy makers. EPA developed QA Project Plans for well selection, data collection and analysis, well sampling, interviewing, and laboratory analysis. During the Survey, EPA conducted numerous audits of field and laboratory activities to ensure that procedures approved as part of the QA program were followed. EPA conducted performance evaluation studies of the analytical laboratories to monitor laboratory capability.

Communications Network

Communication between EPA, Survey participants, and interested parties was key to the successful completion of the Survey.

In EPA's ten Regions, an NPS contact was identified to enlist the cooperation of State water supply and pesticide agencies and to answer questions from the media, elected officials, and organizations interested in the Survey. At the local level, county agricultural extension agents and health officials contributed to Survey planning and implementation and provided a two-way flow of information between EPA and participating local communities.

EPA maintained communications with interested parties through a variety of outreach techniques, including briefings for the media, Congress, and governors' representatives, presentations at national and regional association meetings, articles in technical and scientific journals, and a continuing dialogue with key representatives in the agricultural, environmental, and industrial communities. Periodic "Project Updates" were distributed to over 3,000 interested individuals and organizations.

To assist in notifying Survey participants of sampling results, EPA prepared one-page Health Advisory Summaries to explain the potential health effects of exposure to pesticides in non-technical terms. These Summaries are based on longer, more technical scientific documents called Health Advisories. EPA sent appropriate Health Advisory Summaries to well owners and operators along with Survey sampling results.

Summary of Planned Phase II Analyses

EPA plans a number of statistical analyses using the data compiled from NPS questionnaires and other sources. These analyses will study the association of pesticides and nitrate in drinking water wells with such factors as fertilizer and pesticide use on the property where the well is located, use within one-half mile of the well, and use within the county. Studies will also address the association of pesticides and nitrate in wells with ground-water vulnerability characteristics including depth to groundwater, recharge, aquifer media, soil media, topography, impact of unsaturated zone, and hydraulic conductivity. The Phase II Report will analyze the questionnaire databases, the first-stage and second-stage DRASTIC stratification scoring results, nitrogen fertilizer and pesticide sales, and the Survey analytical results, to investigate the potential causes and consequences of pesticide residues in drinking water wells.

These analyses will include a study of whether there is an association among questionnaire responses. The hypotheses that might be tested include the following: Are there more analyte detections of chemicals associated with unconfined aquifers than with confined aquifers? Are nitrate detections associated with septic units on the

property? Are there more analyte detections of chemicals associated with areas where irrigation is used? EPA is planning scientific investigations to:

- Determine the association between detections and well characteristics;
- Correlate DRASTIC subscores by individual factors (e.g., depth to ground water) with rural domestic well detections;
- Determine associations between pesticide use and pesticide detections in water samples;
- Prepare tables showing pesticide detections by county pesticide use estimates for specific analytes that were detected in the Survey;
- Prepare summary statistics such as frequencies of analytes detected in areas where crops with known associated pesticide use are grown;
- Conduct regression modeling for analytes with sufficient detections. These analyses will seek to identify significant relationships between variables that are not readily discernible from the analyses of well characteristics presented in the Phase I Report;
- Evaluate analytes with few detections by non-statistical review of all available data, such as marginal comments on questionnaires; and
- Compare NPS findings with other studies.

**Where to Go
for More
Information**

This fact sheet is part of a series of NPS outreach materials, fact sheets and reports. The following additional NPS fact sheets are available through EPA's Public Information Center (401 M Street SW, Washington DC 20460, 202-382-2080):

Survey Design	Analytical Methods	Summary Results
Survey Analytes		Glossary
Fact Sheet for each detected analyte	How EPA Will Use The NPS Results	Quality Assurance/ Quality Control

Additional information on the Survey and on pesticides in general can be obtained from the following sources:

U.S. EPA Safe Drinking Water Hotline 1-800-426-4791 (In Washington, DC -- 382-5533) Monday-Friday, 8:30 am to 4:30 pm Eastern Time	Information on regulation of pesticides in drinking water
National Pesticide Telecommunications Network 1-800-858-7378 24 hours a day	Information on health effects and safe handling of pesticides
U.S. EPA Office of Pesticide Programs (OPP) Docket 401 M Street, SW Room NEG004 Washington, DC 20460 (202) 382-3587	Background documents for Survey (available for review)
National Technical Information Service (NTIS) 5285 Port Royal Road Springfield, VA 22161 (703) 487-4650	Copies of the <u>NPS Phase I Report</u> (available 1991) and <u>NPS Phase II Report</u> (when available)

If you are concerned about the presence of pesticides and nitrate in your private water well, contact your local or State health department. Other experts in your State environmental agency or agriculture and health department may also be helpful to you. If you receive your drinking water from a community water system and have questions about your water quality, contact your local community water system owner/operator or the State water supply agency.

U.S. EPA Regional Office Contacts

Region	Drinking Water	Pesticides	Ground Water
I (CT, ME, MA, NH, RI, VT)	Water Quality Branch (617) 565-3531	Office of Pesticides and Toxic Substances (617) 565-3273	Ground-Water Management and Water Supply Branch (617) 565-3610
II (NJ, NY, PR, VI)	Drinking/Ground-Water Protection Branch (212) 264-1800	Pesticides and Toxic Substances Branch (212) 340-6769	Drinking/Ground-Water Protection Branch (212) 264-5635
III (DE, DC, MD, PA, WV, VA)	Drinking Water/Ground-Water Protection Branch (215) 597-8227	Toxics and Pesticides Branch (215) 597-8598	Drinking Water/Ground-Water Protection Branch (215) 597-8227
IV (AL, FL, GA, KY, MS, NC, SC, TN)	Water Quality Management Branch (404) 347-2126	Pesticides and Toxics Substances Branch (404) 347-5201	Ground-Water Protection Branch (404) 347-3866
V (IL, IN, MI, MN, OH, WI)	Safe Drinking Water Branch (312) 353-2151	Pesticides and Toxic Substances Branch (312) 886-6006	Office of Ground Water (312) 886-1490
VI (AR, LA, NM, OK, TX)	Drinking Water Branch (214) 655-7150	Pesticides and Toxics Branch (214) 655-7235	Ground-Water Branch (214) 655-6446
VII (IA, KS, MO, NE)	Drinking Water Branch (913) 551-7032	Toxics and Pesticides Branch (913) 551-7400	Office of Ground-Water Protection (913) 551-7446
VIII (CO, MT, ND, SD, UT, WY)	Drinking Water Branch (303) 293-1430	Toxic Substances Branch (303) 293-1730	Ground-Water Branch (303) 293-1796
IX (AZ, CA, HI, NV)	Drinking Water Branch (415) 744-2250	Pesticides and Toxics Branch (415) 556-5268	Water Quality Planning and Standards Branch (415) 465-2181
X (AK, ID, WA, OR)	Drinking Water Branch (206) 442-4092	Pesticides and Toxic Substances Branch (206) 442-1198	Drinking Water Branch (206) 442-4092

